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UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--DESIGN AND OPERATION OF PISTON COMBINATION ENGINES -U-

AUTHOR--(05)-ORLIN, A.S., ALEKSEYEV, V.P., KOSTYAGOV, N.I., KRUGLOV, N.G.,
KRYLOV, A.N.

COUNTRY OF INFO--USSR

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DATE PUBLISHED-----70

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TOPIC TAGS--DIESEL ENGINE, GASOLINE ENGINE, INTERNAL COMBUSTION ENGINE

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UNCLASSIFIED

2/2 019 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AM0130577
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TABLE OF CONTENTS: INTRODUCTION
5. CHAPTER I. OPERATIONAL PROCESSES IN PISTON AND COMBINATION ENGINES
II. II. PARAMETERS CHARACTERIZING PISTON ENGINES 39. III. THE
WORKING PRINCIPLE OF THE ENGINES 57. IV. GASOLINE ENGINES 149. V.
DIESEL ENGINES 204. VI. GAS ENGINES 324. VII. SPECIAL DESIGNS OF
ENGINES 358. THIS IS A TEXT BOOK WRITTEN FOR THE COURSE "INTERNAL
COMBUSTION ENGINES" OF THE MOSCOW HIGHER TECHNICAL SCHOOL AND CONTAINS A
DESCRIPTION OF THE WORKING PRINCIPLE AND OPERATION OF PISTON INTERNAL
COMBUSTION ENGINES OF ALL TYPES AND ALSO THE SPECIAL FEATURES OF THE
OPERATION AND DESIGN OF COMBINATION AND ROTOR PISTON ENGINES. THIS IS
THE FIRST VOLUME OF A FOUR VOLUME EDITION ON "INTERNAL COMBUSTION
ENGINES".

UNCLASSIFIED

USSR

UDC 621.43.011:533+621.5:533

GOL'DFARB, V. M., KOSTYGOVA, I. YE.

"Optical Study of a Supersonic Nitrogen Jet"

Uch. zap. Leningr. gos. ped. in-t im. A. I. Gertsena (Scientific Notes of Leningrad State Pedagogical Institute imeni A. I. Gertsena), 1971, Vol. 466, pp 76-86 (from RZh-Mekhanika, No 3, Mar 72, Abstract No 3B374)

Translation: The experimental technique and the results of a study of the population of electron, rotational and vibrational states and measurements of the concentration of plasma components in a supersonic nitrogen jet flowing into a region of reduced pressure are described. A brief survey of studies concerning the study of relaxation processes occurring in supersonic expansion of heated gases is given. A spectroscopic method was used in the experiments and the application of the equipment was described earlier (Gol'dfarb, V. M., Il'ina, Ya. V., Kostygova, I. Ye., Luk'yanyov, G. A., Siliant'yev, V. A., Zh. Prikl. mekhan. i tekhn. fiz., 1967, No. 1, pp 111-165; RZhMekh, 1967, 8(9)). The basic measurements were made under the following conditions: pressure in the chamber of the arc plasmatron 410 mm Hg, pressure in the vacuum chamber 0.55 mm Hg, arc current 60 amp, voltage 56 v, nitrogen flow 0.07 g/sec. The

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GOL'DFARB, V. M., KOSTYGOVA, I. YE., Uch. zap. Leningr. gos. ped. in-t im. A. I. Gertsena, 1971, Vol. 466, pp 76-86

radiation was recorded in a direction perpendicular to the axis of the jet. Spectral measurements were made with the UM-2 device with an attachment or a SD-2 diffraction spectrometer. Radiation intensity was measured over a wide spectral interval using a camera or the OAP-4 device. Data were obtained on the population of electron states and electron parameters of the plasma. Rotational and vibrational temperatures were calculated on the basis of the distribution of intensities in the bands. The results are analyzed. 14 ref. Yu. F. Dityakin.

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KOSTYKOV, YU. V.

Television

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The results of testing are as follows:—
The following table gives the results of the experiments made with the various types of materials. The table shows the percentage of conversion of cellulose to glucose, the percentage of conversion of cellulose to xylose, and the percentage of conversion of cellulose to galactose. The results show that the national enzyme solution had certain results with the different materials tested, and that the results obtained with the cellulase solution were similar to those obtained with the cellulase solution.

The new generation, however, because of their greater knowledge of the world, are more inclined to accept the principles of socialism, and are more likely to support the socialist party.

Geological Society of America Special Paper 200, 1967, 100 pp., 10 x 13 in., \$10.00
including postage and handling. Order from Geological Society of America, Box 9475, Boulder, Colorado 80301.

descriptions of time-space sequences and their relations to other sequences. Controllable interests, problems of the social environment, vision recording units, problems of the audio system, video tape, magnetic tape, dimensionless television, recording of television images, and the technique of remote control.

The concluding part is devoted to questions dealing with organization and regulation of television apparatus.

THEORY AND CONSTRUCTION OF SPATIAL HIERARCHIES

The book contains ten chapters of clear theory, five tables and two figures. The first chapter gives a brief account of the working ability of electric machines. A detailed description of action of various kinds of electrical machines is given. The second chapter deals with analysis of various systems both for the electrical and mechanical parts. The third chapter gives a detailed account of the theory of working capacities and products of various electrical machines. Various kinematic schemes of machine components for both electrical and mechanical drives are described and fundamental of theory of their operation are given. The methods of calculating various semi-automatic machines and stamping machines are cited.

This book is designed for engineering and technical students in universities and production laboratories of postal enterprises. It may also be useful to teachers and students in communications institutes and technical schools.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002201520004-5

EDC 621.039.56(088.8)

USSR

KOROLEV, Ye. V., KOSTYLEV, D. V., ANDREYCHIKOV, B. I., PINCHIK, D. Ya.,
BARANOV, Ya. I.

"Overload Machine"

Peregruzochnaya mashina (cf. English above), Authors Certificate USSR,
Class G 21 d 1/00, No. 325635, Announced 30 October 1966, Published
14 March 1972 (from RZh-50. Yadernyye reaktory, No 11, Nov 72, Abstract
No 11.50.110 P)

Translation: An overload machine is patented that contains a shell, a platform, mechanisms for coordinate displacement, and a system for television observation. It has two manipulators to increase the reliability for acquiring and displacing nonequilibrium objects and a synchronization mechanism, a manipulator equipped with a device for the smooth increase and limitation of forces and an auxiliary manipulator equipped with a hand screw. The inner tube of the working manipulator was installed on a compression spring which was balanced by a second spring in order to increase the smoothness of shockless installation of the overload object and between the springs there was installed a transducer to control the magnitude of the force.

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Acc. Nr: AP0047192

Ref. Code: UR 0511

PRIMARY SOURCE: Stomatologiya, 1970, Vol 49, Nr 1, pp 83-84

M. V. Kostylev—THE USE OF A SPLITTED RIB IN OSTEOPLASTY
OF THE MANDIBLE AND TAKING IT WITH THE AUTHOR'S OSTEOTOME

S u m m a r y. As the result of successful employment of a splitted rib in osteoplasty of the mandible in 76 patients the author arrived at the conclusion that the best viable plastic material for replacement of mandibular defects is the cortical plate of the rib. The author proposes a design of osteotome and describes the technique of the operation.

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USSR

UDC 621.352.2

SOKOLOVSKIY, I. I., BROVKIN, YU. N., KOSTYLEV, S. A.

"Microwave Power Attenuation Effect in Gunn Diodes"

Kiev, Izvestiya vuzov SSSR, Radioelektronika, Vol XV, No 8, 1972, pp 949-953

Abstract: The results of an experimental study of a three-centimeter band attenuator made of n-GaAs diodes with $\mu = 4,500 \text{ cm}^2 \text{ V}^{-1} \text{ sec}^{-1}$, 100-250 microns long, are described. Attenuation is realized for biases on the diode from 0.8 to $1.4 E_{\text{thresh}}$. On the basis of sonde measurements of the potential and the local volt-amplitude characteristics, a physical model was developed which explains the nonlinearity of the volt-amplitude characteristic of the entire specimen in the subthreshold range insuring attenuation of the bias voltages in this segment. In the superthreshold region, the attenuation is realized by external negative conductivity arising in the presence of the Gunn effect. The attenuation range depends on the microwave power level and the off-duty factor of the feed pulses. The causes for this phenomenon are discussed.

It is possible to use Gunn diodes not only for the generation of microwave oscillations but also to create other microwave devices. The nonlinearity of the volt-amplitude characteristic arising from the same physical mechanism but differing with respect to external manifestation in the two bias regions 1/2

USSR

SOKOLOVSKIY, I. I., et al., Izvestiya vuzov SSR, Radiotekhnika, Vol XV, No 8, 1972, pp 949-953

(before and after the threshold) by the formation of static domains and external negative conductivity obtained as a result of depression of the domains by the probe signal is used for this purpose. By appropriate selection of the parameters of the specimen and the material it is possible for the described devices to operate on medium and high power levels where the dynamic attenuation range depends on the microwave signal level.

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USSR

UDC 611.522

BROVKIN, YU.N., KOSTYLEV, S.A.

"Stability Criterion Of Dipole Domains In Gunn Diodes"

Izv. Vuz SSSR:Radioelektronika. Kiyev, Vol XV, No 11, Nov 1972, pp 130-131

Abstract: Simple analytical expressions which determine the stability range with respect to the bias of dipole domains as a function of the parameter n_{01} of a specific specimen are derived for use in engineering calculations of Gunn diodes in various operating conditions. The problem was partially solved in another work [4]. However, it is shown that the results of [4] are correct only in the case of an extremely small value of the parameter n_{01} , and consequently are not acceptable in practical cases. 2 fig. 6 ref. Received by editors: 19 July 1971.

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USSR

UDC: 621.382.029.6

SOKOLOVSKIY, I. I. and KOSTYLEV, S. A.

"Modulation Sensitivity of Gunn Oscillators"

Moscow, Radiotekhnika i elektronika, No 8, 1972, pp 1713-1716

Abstract: First theoretically and then experimentally, the authors investigate the connection between the bias voltage applied to the Gunn oscillator and variations in the temperature, in the resonance circuit. In this type of circuit, changes in the temperature of the specimen cause the modulation sensitivity to vary in a complex way with changes in temperature, and these changes are reflected in changes in the oscillation spectrum. It is found that the modulation sensitivity is determined by the nature of the change in concentration and mobility of the carriers with the temperature. In the experiments, the behavior of the oscillator was observed in the interval of +20 to -70° C, with a GaAs specimen having an impurity concentration of $6 \cdot 10^{14}$ to $1.5 \cdot 10^{15}/\text{cc}$, a mobility of 5500-6000 $\text{cm}^2/\text{V}\cdot\text{sec}$, and a length of 70-130 μ . It is recommended that, to keep the frequency stable in the face of applied voltage variations, the operation temperature should be kept stationary.

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USSR

UDC 621.373.53

SOKOLOVSKIY, I. I., KOSTYLEV, S. A.

"Frequency Control of Gunn-Effect Oscillators by a Magnetic Field"

Kiev, Izvestiya vuzov SSSR, Radioelektronika, Vol XV, No 8, 1972, pp 945-948

Abstract: Experimental data are presented on magnetic frequency control of Gunn-effect oscillators in the suppressed domain mode. The control is realized by magnetization of a ferrite filling part of the three-dimensional resonator containing the Gunn diode. Correspondence was obtained between the experimental results and the analytical expressions for tuning obtained in the perturbation method approximation. When operating in the fields far from ferromagnetic resonance, an acceptable tuning band is insured with good nonuniformity of the output power. The parameters are improved by rational selection of the resonance system.

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USSR

UMC: 53.07/.08+53.001.5

KOSTYLEV, V. A., FISHMAN, L. Ya., MARKEVICH, B. Ya.

"Optimizing the Parameters of Multichannel Collimators for Radioisotopic Scanning"

V sb. Vopr. dozimetrii i zashchity ot izluch. (Problems of Dosimetry and Radiation Shielding--collection of works), vyp. 12, Moscow, Atomizdat, 1971, pp 179-186 (from RZh-Fizika, No 4, Apr 72, Abstract No 4A684)

Translation: The authors discuss the difficulties of optimizing the parameters of a collimating device which to a considerable extent determines the effectiveness of radioisotopic scanning. The quality of the collimating device is characterized by the degree of reliability with which it enables detection of spatial gradients in the activity of a gamma emitter. A detection system is considered which is made up of a scintillation detector and a multichannel focusing ring collimator. It is noted that systems of this type have higher sensitivity than systems with cellular collimators, and better resolution than with single-channel collimators. The sensitivity of the collimated detecting system to a point isotropic source was calculated on the BESM-4 computer using the optical approximation. The

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USSR

KOSTYLEV, V. A. et al., Vopr. dozimetrii i zashchity ot izluch., vyp. 12,
Moscow, Atomizdat, 1971, pp 179-186

method of steep ascent on the BESM-4 was used in determining the maximum
of the quality factor of the collimator as a function of its parameters.
Parameters are presented for a universal focusing ring collimator con-
structed on the basis of these calculations. M. L.

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USSR

UDC: 53.083.8

YEMEL'YANOV, S. V., Corresponding Member of the USSR Academy of Sciences; MATICH, B. P., Doctor of Technical Sciences; and KOSTYLEVA, N. Ye., Candidate of Technical Sciences

"Universal Unified System for Controlling a Variable Structure,
Part 1"

Moscow, Pribory i Sistemy Upravleniya, No 12, 1973, pp 8-17

Abstract: This article is the first installment in a detailed description of SUPS, the transliterated Russian acronym for "system for controlling a variable structure." The system is the result of a decision of the Goskomitet on Science and Technology of the USSR Council of Ministers calling for the cooperation of the Institute of Management Problems and the Yugoslav enterprise "Energo-invest" to cooperate on a solution to the problem of automating the lower hierarchical level in industry. The contract under which the system was developed covered the period of 1969-1973. The documentation for the technical aspects of the system is outlined and the names of the leading designers are given. Also shown are
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UDC: 53.083.8

YEMEL'YANOV, S. V., et al, Pribory i Sistemy Upravleniya, No 12,
1973, pp 8-17

diagrams of the symbol classification for local control systems
and problems of lower hierarchy automation and a full-page block
diagram with textual explanation of the SUPS information system.
Photographs of some of the units in the system are also supplied,
together with explanatory block diagrams. A bibliography of 25
titles is appended.

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USSR

UDC 62-50

YEMEL'YANOV, S.V.; UTKIN, V.I.; TARIN, V.A.; KOSTYAEVA, N.Ye.; SHUBLADZE, A.M.; YEZEROV, V.B.; DUBROVSKIY, Ye.N.

"Theory of Systems with Variable Structure" (book)

Teoriya System s Peremennoy Strukturoy [English version above], Moscow, Nauka Press, 1970, 592 pp

Annotation: This book presents a new division in the theory of automatic control -- the theory of systems with variable structure (VSS) belonging to the class of nonlinear automatic control systems. A broad range of problems is covered. The problems of control of objects with constant and variable parameters in the mode of free motion and with external perturbing forces are studied. Considerable attention is given to solution of the problem of stability of the systems in question. Methods are suggested for controlling objects with many controlled quantities. Methods are presented for synthesis of adaptive systems with variable, simple solutions. The capabilities of methods

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USSR

YEMEL'YANOV, S.V., et al., Teoriya Sistem s Peremennoy Strukturoy, Moscow, Nauka Press, 1970, 592 pp

from the theory of systems with variable structure with incomplete information on the state of the system are studied. Problems related to the application of variable structure systems in problems of filtration are analyzed; a qualitative comparison of linear optimal filters and filters with variable structure is presented.

181 figures; 137 biblio. refs.

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YEMEL'YANOV, S.V., et al., Teoriya Sistem s Peremennoy Strukturov, Moscow,
Nauka Press, 1970, 592 pp

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YEMEL'YANOV, S.V., et al., Teoriya Sistem s Peremennoy Strukturoy, Moscow,
Nauka Press, 1970, 592 pp

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YEMEL'YANOV, S.V., et al., Teoriya Sistem s Peremennoy Strukturoy, Moscow,
Nauka Press, 1970, 592 pp

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YEMEL'YANOV, S.V., et al., Teoriya Sistem s Peremennoy Strukturoy, Moscow,
Nauka Press, 1970, 592 pp

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- YEMEL'YANOV, S.V., et al., <u>Teoriya Sistem s Pervremennoy Strukturoy</u> , Moscow, Nauka Press, 1970, 592 pp
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- 14 -

1/2 027 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--MODIFICATION OF POLYETHYLENE FILMS BY PHOTOCHEMICAL GRAFT
POLYMERIZATION -U-

AUTHOR--(103)-KOSTYLEVA, Z.A., SHUBOVICH, V.A., KACHAN, A.A.

COUNTRY OF INFO--USSR

SOURCE--PLAST. MASSY 1970, 2, 14-15

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--GRAFT POLYMERIZATION, ACTIVATION ENERGY, THERMAL STABILITY,
COPOLYMER, PLASTIC FILM, CHEMICAL REACTION, ACRYLIC ACID, POLYETHYLENE,
PHOTO SENSITIVITY

CONTROL MARKING--NO RESTRICTIONS

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PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0112683

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PHOTOSENSITIZED (WITH PH SUB2 CO) GAS PHASE GRAFT COPOLYMN. OF ACRYLIC ACID (I) ON POLYETHYLENE (II) FILMS WAS STUDIED. THE COPOLYMN. WAS A 1ST ORDER REACTION WITH RESPECT TO LIGHT INTENSITY (I) WHENEVER I IS SMALLER THAN 10 NEGATIVE PRIME8 EINSTEIN,CM PRIME2,SEC, WHEREAS AT HIGHER I THE ORDER WAS INDEPENDENT OF I. THE ACTIVATION ENERGY (DETO. AT 30-50DEGREES) WAS 4.6 KCAL/MOLE. THE ADVANTAGES OF THE PHOTOSENSITIZED GRAFT COPOLYMN. OF I ON II FILMS WERE POINTED OUT. THE MODIFIED II FILMS EXHIBITED HIGHER THERMAL STABILITY AND IMPROVED PHYSICOMECH. PROPERTIES.

UNCLASSIFIED

KOSTYREVА, I.V.

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E-6. EXPERIMENTAL STUDY OF THE DISTRIBUTION OF THE ADDITIVES IN POLYALUMINUM
FILM STRUCTURES OF GALLIUM ARSENIDE GROWN BY THE METHOD OF LIQUID EPITAXY
Article by A. A. Bar'ykin, A. A. Zakharev, I. V. Kostenko, N. A. Kudryavtseva,
V. M. Petrenkova, L. S. Shchegoleva, I. I. Slobodchikov
Zvezdochka Polyurethane Research Institute, Moscow, USSR
1972, p 116.

This paper contains a discussion of the results of an experimental study
of the aluminum distribution in thin epitaxial layers of the $\text{Al}_x\text{Ga}_{1-x}\text{As}$
alloy, grown from the melt, using the Czochralski method, and using a temperature gradient. The conditions of epitaxial growth of the
layers are the following: the saturation temperature of the melt is 1000°C, the growth rate is 10 mm/h, the crucible size is 100 mm, the temperature gradient is
2-10 degrees/100 mm, gallium and zinc were used as the alloying additives.
The distribution of the additives in the structures obtained was investigated
by the known volt-ampere methods and also using the chemical analysis
method developed by Eshchenko et al. The research demonstrated that
depending on the conditions and the growth features, sharp transitions of the
additives concentration are obtained between the layers and also regions
with intermediate high-resistance and low-resistance layers. It was determined
that when using the temperature gradient method, a more uniform distribution
of the additives is obtained with respect to the thickness of the layers.
The measurement results obtained by different methods agree quite well with
each other.

1/2 019 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--DIFFERENTIAL PHOTOMETRIC METHOD OF DETERMINING GERMANIUM -U-

AUTHOR--(02)-PIRYUTKO, M.M., KOSTYREVA, T.G.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB., 1970, 36, 131+ 276

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--PHOTOMETRIC ANALYSIS, GERMANIUM, MOLYBDENUM COMPOUND, METAL COMPLEX COMPOUND

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/0916

STEP NO--UR/0032/10/036/003/0276/0276

CIRC ACCESSION NO--AP0131502

UNCLASSIFIED

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UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0131502

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A DIFFERENTIAL PHOTOMETRIC METHOD OF DETERMINING LARGE QUANTITIES OF GE IS DESCRIBED; THE METHOD IS BASED ON THE STUDY OF A GE-MO COMPLEX IN THE PRESENCE OF ACETONE AS STABILIZER, AND DIFFERS FROM EXISTING METHODS COMMONLY EMPLOYED FOR DETERMINING GE IN SMALL QUANTITIES. THE AVERAGE ERROR IN THE DETERMINATION IS SIMILAR TO 0.3PERCENT. PRACTICAL TESTS CONFIRM THE ADVANTAGES OF THIS METHOD OVER ITS PREDECESSORS.

UNCLASSIFIED

USSR

UDC 595.771.-12:616.988.25-032.9

L'VOV, D. K., KOSTYRKO, I. N., and GROMASHEVSKIY, V. I., Institute of
Virology imeni D. I. Ivanovskiy, Academy of Medical Sciences USSR, Moscow

"Experimental Infection of Aedes aegypti and Culex pipiens molestus
Mosquitoes With Tyuleniy Virus"

Moscow, Meditsinskaya Parazitologiya i Parazitarnyye Bolezni, No 2, 1973,
pp 191-193

Abstract: Aedes aegypti and Culex pipiens molestus mosquitoes were infected with Tyuleniy virus, a B group arbovirus isolated in 1969 from the tick *Ixodes (Ceratixodes) putus* collected on Tyuleniy Island in the Sea of Okhotsk basin from guillemots (the virus was subsequently isolated from *I. ptilus* on the Commander Islands, Murmansk littoral, and Oregon littoral). The virus titers in the infective material ranged from 5.5 to 6.5 lg LD₅₀/0.01 ml for suckling mice inoculated intracerebrally. Virus was regularly detected in the mosquitoes the first day after infection and again from the 4th to 31st days thereafter in titers of 1.5 to 3.5 lg LD₅₀/0.01 ml. The virus was transmitted to suckling mice by bites of the mosquitoes 7 to 19 days after infection.

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USSR

UDC 576.858.095.383:576.895.771

RAYKOVA, A. P., KLIMENKO, S. N., KOSTYRKO, I. N., CHCHASHIEVSKIY, V. I.,
and L'VOV, D. K., Institute of Virology imeni D. I. Ivanovskiy, Academy of
Medical Sciences USSR, Moscow

"An Investigation of the Ability of Sumah Virus From the Vuukuniemi Group
to Proliferate in Aedes Aegypti Mosquitoes"

Moscow, Voprosy Virusologii, No 6, Nov/Dec 71, pp 731-735

Abstract: A. aegypti mosquitoes experimentally infected with Sumah virus (added to nutrient suspension) were investigated by electron microscopy and titrations on mice for 2 months. The results revealed a regular reproduction of the virus in the mosquitoes. The virus is present in the cytoplasm, the intercellular spaces in the epithelial tissues, and salivary gland ducts of the mosquitoes from the 11th day after infection, but transmission by bite occurs only when the virus concentration is at least 2.5 lg LD₅₀ per 0.01 ml of mosquito tissue. Virus particles have an oval shape, with the long axis 900-1000 Å and the short axis 700-800 Å long, and they have a two-layer membrane which is 90-100 Å thick.

1/1

- 67 -

USSR

UDC: 621.438:669.5:546.821

KOSTYRKO, O. S., BRAUN, M. P., MARTYNENKO, A. P., ZELENAYA, L. A., and
GRIGOR'YEV, V. P.

"Particularities Associated With Using Some Grades of Steel and Alloys at
Low Temperatures"

V sb. Lityye iznosostoyk. materialy (Cast Wear-Resistant Materials --- collection of works), Kiev, 1972, pp 156-164 (from RZh-Turbostroyeniye, No 5, 1973, Abstract No 5.49.152)

Translation: The authors study changes in the casting expansion factor and the characteristics of strength, plasticity, and ductility within a broad temperature interval of up to -70° C for the 12 Kh 2CrA, 18KhNVA, 30 Kh GSA, 38 KhNYuA, 40 Kh NMA, 2 Kh13, Kh17 N2, EI693-M grades of steel and for the VTZ-1 alloy. Fatigue strength using smooth and cut specimens was also studied in the case of the Kh17N2 and EI961 grades of steel and the VTZ-1 alloy. Original article: 5 tables, 3 bibli. entries.

1/1

USSR

UDC 681.3.06:51

GLUSHKOV, V. M., KOSTYRKO, V. F., LETICHEVSKIY, A. A., ANUFRIYEV, F. V.,
SEL'DEROV, Z. M.

"A Language for Recording Formal Theories"

Teor. Kibernetiki. vyp. 3 [Theory of Cybernetics, No 3 -- Collection of Works],
Kiev, 1970, pp 4-31, (Translated from Referativnyy Zhurnal, Kibernetika, No 6,
1971, Abstract No 6 V591 by V. Mikheyev).

Translation: A version is suggested of the first portion of a formal language, YaP for recording of mathematical theorems and their proofs -- language YaT for recording of formal theories. It is noted that the second portion of the YaP language -- language YaA for recording of algorithms for transformation of numerical and non-numerical information -- will be presented in a later article. YaT includes means taken from the language of narrow predicate calculus with equalities and functional variables, a language of expanded calculus, the language of set theory, as well as certain special devices. The syntax of the language, structure of the formalized mathematical text, symbols representing subjects, objects and structural functions are described in detail. The rules for usage of language YaT are presented.

1/2 021 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--WIDTH OF (GD SUB2 O SUB3) SUBX (GD CRD SUB31 SUB1 MINUS X EPR LINES

-U-
AUTHOR--GLINCHUK, M.D., KARHAZIN, A.A., KOSTYBYA, A.A., LOPATC, L.M.,
SHEVCHENKO, A.V.

COUNTRY OF INFO--USSR

SOURCE--UKR. FIZ. ZH. (RUSS. ED.) 1970, 15(1) 59-62

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--EPR SPECTRUM, LINE WIDTH, LINE BROADENING, CHROMIUM OXIDE,
GADOLINIUM COMPOUND, METAL OXIDE, CHEMICAL COMPOSITION, TEMPERATURE
DEPENDENCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1989/1345

STEP NO--UP/0185/70/015/001/0059/1262

CIRC ACCESSION NO--AP0107818

UNCLASSIFIED

2/2 021

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0107818

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. IN THE SYSTEM GD SUB2 O SUB3+CR SUB2 O SUB3 THE GD SUB2 O SUB3 CONTENT WAS VARIED BETWEEN 50 AND 100PERCENT. THE OBSO. INCREASE IN THE WIDTH OF THE EPR LINE WITH INCREASING GD SUB2 O SUB3 CONTENT AROSE FROM DIPOLE DIPOLE AND EXCHANGE INTERACTION. AT LOWER TEMP. THE INTENSITY OF THE EPR SIGNAL OF GDCP3 SUB3 DECREASED; THE DISAPPEARANCE OF THE LINE AT 170DEGREESK WAS ASSIGNED TO A MAGNETIC ORDERING OF THE CR ION SUBLATTICE.

USSR

UDC 666.192.462

ZOLOTAREVA, R. S., Candidate of Technical Sciences, and RUSLOV, V. N.,
KOSTYRYA, V. N., and MOSKALENKO, A. M., Engineers (NIIAvtosteklo /expansion
unavailable/)

"Efficient Utilization of Graphite in the Production of Quartz Tubes"

Moscow, Steklo i Keramika, No 12, Dec 73, p 33

Abstract: Quartz for the production of quartz tubes at the "Avtosteklo" plant is melted in graphitized crucibles 172 x 350 mm, made from a blank 200 mm in diameter and 420 mm long. The crucible is made from the blank by means of a goring cutter on a lathe, with utilization of 14% of the material of the blank. An efficient method for cut-out of the blank by a special milling cutter is proposed by the authors, which would result in an increase of the coefficient of utilization of the material by a factor of 2.2. This would save the plant 19,000 rubles per year. 3 figures.

1/1

Refractory Materials

(5)

USSR

UDC 666.764:621.928.37

MARANTS, A. G., GUTMAN, V. I., All-Union Institute of Refractories; FRANTOVA, E. S., ZEGER, I. Ye., VASILIVITSKIY, A. V., KREYDLIN, P. N., All-Union Scientific Research, Planning, and Design Institute of Metallurgical Machinery; ROMANOVSKIY, L. B., KOREN, L. N., and KOSTYRYA, Yu. F., Dnepropetrovsk Metallurgical Institute

"Prospects of the Application of the Melting Cyclone for the Production of Melted Refractories"

Moscow, Ogneupory, No 5, 1973, pp 50-54

Abstract: The process of cyclone melting was investigated with a view to produce melted refractories of the magnesium-spinel and brasilite-corundum types. Experiments were carried out at the Institute of the Problems of Material Science of the Academy of Sciences UkrSSR. The experiments indicated the possibility of applying melting cyclones with the use of a blast enriched with oxygen for the production of cast fused refractories with a 1800-1900°C fusion temperature in which the melt aggregates in the warming forehearth for aftercasting into molds. The dust removal in cyclone melting does not exceed 5%, thus ensuring the production of a melt which is close to the initial charge in chemical composition. The optimum content of oxygen in the blast at an approximate natural gas consumption of 1.5 nm³/kg charge was determined.

1/2

USSR

MARANTS, A. G., et al., Ogneupory, No 5, 1973, pp 50-54

The properties of the produced materials are analyzed. Four figures, three tables, three bibliographic references.

2/2

- 47 -

USSR

UDC 615-391

KOLESNIKOV, I. S., BALLYUZEK, F. V., SHANIN, YU. N., ROSTYUCHENKO, A. L.,
and MALAKHOV, S. F., Hospital Surgical Clinic, Military Medical Academy
imeni S. M. Kirov, Leningrad

"Experience in the Use of the Hemoglobin-Containing Preparation Erigem as a
Blood Substitute"

Leningrad, Bestnik Khirurgii imeni I. I. Grekova, Vol 108, No 5, May 72,
pp 95-98

Abstract: As distinguished from blood extenders that merely bring the plasma volume to normal, the blood substitute Erigem, which contains hemoglobin that has been freed of stroma, transports O₂ and maintains the respiratory function of the blood. Maintenance of this function until it can be restored by a blood transfusion would be one of the characteristics of an ideal blood substitute. Erigem was developed in 1962-64 at the Scientific Research Institute of Hematology and Blood transfusion in Leningrad. The clinical application of small doses of Erigem had been investigated thoroughly, but data on the effects of large doses were lacking. In the work described in this instance, Erigem was administered in large doses to 18 patients with pulmonary disturbances on the first day after surgery of the lungs. In cases of this type, an insufficient respiratory function of the blood is often 1/2

USSR

KOLESNIKOV, I. S., et al., Vestnik Khirurgii imeni I. I. Grakova, Vol 108,
No 5, May 72, pp 95-98

encountered in connection with a large blood loss, insufficient respiratory function of the erythrocytes of transfused blood, and a pronounced oligocytotoxic hypovolemia. Lyophilized Erigen was diluted with Ringer's solution and infused into the bloodstream in single doses of 14 ml per kg body weight (700-1,100 ml) corresponding to approximately 30 g hemoglobin. The preparation exerted a marked hemodynamic effect, increasing the arterial pressure to normal and reducing the tachycardia. It had an apyrogenic effect and exerted a distinct volemic action that continued for the 6-7 hrs during which the hemoglobin that had been introduced circulated in the body. The oxygen capacity of the blood increased. The arterio-venous difference of the plasma with respect to O₂ was 50% on the average after the administration of Erigen. These and other data indicated that Erigen had a satisfactory effect in transporting O₂ in the organism. No adverse reactions to the injections of Erigen were observed. The kidney function was normal after the injections, but caution is indicated in administering large doses of Erigen to patients with kidney disturbances. Erigen can be kept in storage for approximately 2 yrs.

2/2

- 18 -

K
Organ and Tissue Transplantation

USSR

UDC 616.12-039.843-0.6:616.12-009.315-0.6:745.51

BALLYUZEK, F. V., SHANIN, Yu. N., KOSTYUCHENKO, A. L., SHCHELELEV, V. S., VOLKOV, Yu. N., FEDOROV, G. Z., and SUPRUNENKO, Yu. P. Clinic of hospital Surgery, Military Medical Academy imeni S. M. Kirov, Leningrad

"A Sterile Room for the Reanimation of Patients After Homotransplantation of the Heart"

Moscow, Eksperimental'naya Khirurgiya i Anesteziologiya, No 2, Mar/Apr 70, pp 54-57

Abstract: After transplantation of the heart, respiratory infections constitute one of the principal dangers to the patients because of their lowered resistance and immunity. J. Phillips and G. Spencer estimated that respiratory infections caused the death of 1/4 of patients dying after surgery involving extracorporeal, blood circulation. A sterile chamber (3.7 X 3 X 2.5 m) has been designed for the reanimation and intensive care of patients after surgery involving extensive trauma and requiring rigorous antibacterial protection. The chamber is constructed of plastic sheets welded together and has an entrance lock consisting of two overlapping, suspended plastic sheets. The chamber has connections for O₂, N₂O, and vacuum, a telephone line, and electric connections for a defibrillator and an automatic system which records and transmits outside data on the condition of the patient. Equipment for the intubation of the trachea, healing of the trachea.

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USSR

BALLYUZEK, F. V., et al, Eksperimental'naya Khirurgiya i Anestesiologiya, No 2,
Mar/Apr 70, pp 84-87

bronchial passages, and for producing artificial coughs is located in it. Air that has been sterilized by irradiation is pumped into the chamber, in which the air pressure is higher by 7-10 mm than that outside. After 2-3 hrs. of operation of the chamber, the air in it contains no more than 0-2 possibly pathogenic bacteria per cubic meter and no pathogenic bacteria. The chamber is equipped with windows of transparent plastic, has translucent walls, and is lit from the outside. After adequate sterilization measures, a nurse who takes care of the patient may stay in the chamber and other medical personnel may enter it. The chamber ought to be adequate for the care of patients who have undergone heart transplants.

2/2

1/2 014 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--A STERILE ROOM FOR REANIMATION OF PATIENTS AFTER
HOMOTRANSPLANTATION OF THE HEART -U-
AUTHOR--(05)--BALLYUZEK, F.V., SHANIN, YU.N., KOSTYUCHENKO, A.L.,
SHCHELKUNOV, V.S., VOLKOV, YU.N.
COUNTRY OF INFO--USSR

SOURCE--EKSPERIMENTAL'NAYA KHIRURGIYA I ANESTESIOLOGIYA, 1970, NR 2, PP
84-87
DATE PUBLISHED--70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--ORGAN TRANSPLANT, HEART SURGERY, HOSPITAL EQUIPMENT, ISOLATION
CHAMBER

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1990/0622

STEP NO--UR/0481J70/000/002/0084/3087

CIRC ACCESSION NO--AP0108837

UNCLASSIFIED

2/2 014

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO—AP0108837

ABSTRACT/EXTRACT—(U) GP-0- ABSTRACT. THE AUTHORS COMMIT TO PAPER A DESCRIPTION OF THE DESIGN AND RESULTS OF HYGIENIC AND BACTERIOLOGICAL EVALUATION OF A STERILE ISOLATION ROOM FOR PATIENTS AFTER HOMOTRANSPLANTATION OF THE HEART. THE ORGANIZATION OF WORK OF THE PERSONNEL IN THE STERILE ISOLATION ROOM IS DEPICTED. FACILITY: KLINIKA GOSPITAL'NOY KHIRURGII VOYENNO MEDITSINSKOY AKADEMII IM. S. M. KIROVA, LENINGRAD.

UNCLASSIFIED

AAc052692- KOSTYUCHENKO I.S.
UR 0482

Soviet Inventions Illustrated, Section III Mechanical and General,
Derwent, 1-70

241228 RESPIRATOR, consists of a half-(face)-mask,
a container 2 which holds the filtering
device, replaceable filtering element 3 and cover 4,
pin 5 for holding the valve 6 on the inlet, and the
pin 7 for holding the valve 8 on the outlet, which
is also fitted with a sanitary compartment 9. Studs
10 fasten the headband 11 to the face-mask, whilst
studs 12 fasten the replaceable face-band to the
edges of the mask. The pins 5, the sanitary compartment
and the studs are all made in one piece with the
face mask and the body of the filter-chamber. This
reduces the number of separate components which go
into the make up of the respirator. 27.5.68. #
1242796/31-16. I.S KOSTYUCHENKO et al.
(22.8.69.) Bul.13/1.4.69. Class 61a. Int.Cl. A62b.

1/1

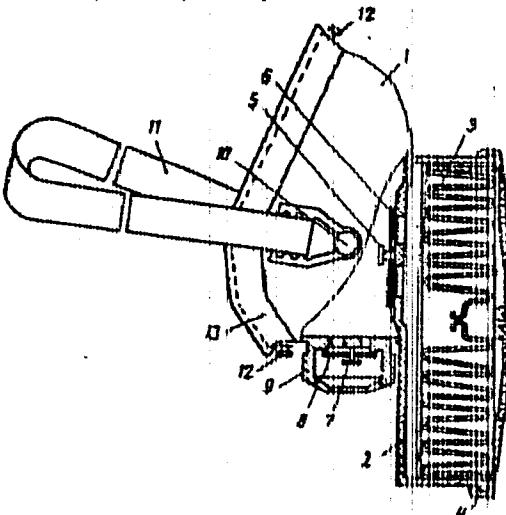
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"APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002201520004-5

Acc. Nr.: AA0052692



Kostyuchenko, I. S.; Olontsev, V. F.; Akulov, V. A.; Gorokhova, V. A.

2/2

REEL/FRAME
19821480

Bb

APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002201520004-5"

USSR

UDC: 621.317.74

KOSTYUCHENKO, K. K.

"A Resonance Instrument for Measuring Small Attenuations With Stationary Links"

Dokl. Vses. nauchno-tekhn. konferentsii po radiotekhn. i amerepiyam. T. 2 (Reports of the All-Union Scientific and Technical Conference on Radio Engineering Measurements. Vol. 2), Novosibirsk, 1970, pp 43-46 (From RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12A388)

Translation: The author compares three types of resonance instruments for measuring small attenuations. Note is taken of the simplicity and reliability of instruments for measuring small attenuations with stationary links, both with respect to manufacturing and with respect to suitability for practically any coaxial and waveguide channels. A disadvantage of this type of instrument is the increased complexity of formulas for determining quantities. Methods are indicated which can be used to get around this disadvantage. Consideration is given to some other problems associated with the use of this type of instrument for measuring small attenuations. Bibliography of 11 titles. E. L.

1/1

USSR

UDC 621.372.852.6

KOSTYUCHENKO, K. K.

"Miniature Impedance Transformers for the Decimeter and Meter Bands"

Tr. Metrol. in-tov SSSR (Works of Metrological Institutes of the USSR), 1977, vyp.
103 (163), pp 86-89 (from RZh-Radiotekhnika, No 10, Oct 70, Abstract No 11577)

Translation: The length of the proposed impedance transformer is reduced by using a "coiled" decelerating system (a strip with channels cut into it on both sides) between two parallel plates (shield). The coefficient of reflection is controlled by using a capacitive fork introduced into the clearances between the plates and the fork. Data are given from measurement of the deceleration coefficient as a function of coil length and frequency, and a curve is also given for losses as a function of fork position. Five illustrations, one table, bibliography of one title.

N. S.

1/1

105

USSR

UDC 547.752

VINOGRAD, L. KH., SHALYGINA, O. D., BULATOVA, N. N., MONTYUCHENKO, N. P.,
ZYKOVA, T. N., MIKERINA, A. L., ARUTYUNYAN, G. S., and GUVOROV, N. N., All-
Union Scientific Research Chemical and Pharmaceutical Institute imeni Sergo
Ordzhonikidze, Moscow

"Indole Derivatives. Report 72. Addition of Sulfur-Containing Reagents to
Nitrovinylinole"

Moscow, Khimiko-Farmatsevticheskiy Zhurnal, Vol 5, No 12, Dec 71, pp 15-17

Abstract: The addition of sulfur-containing nucleophilic reagents to unsaturated nitro-compounds of the indole series was studied. The addition reactions of seven new indole derivatives are detailed and the addition products identified. In-vitro therapeutic tests revealed a weak germistatic activity (500-250 mcg/ml) in 1-benzylmercapto-1-(1'-acetylindolyl-3)-2-aminoethane chloralhydrate relative to 17 microorganism strains. The study includes general effects, effects on smooth muscles, circulation and respiration body temperature, interaction with hexenal and iprazid, antihistaminic, antispasmodic and anesthetic effects. The compound revealed weak pharmacological activity, weak spasmogenic action and slightly increased capillary permeability. It appears to promote the somnifacient effect of hexenal. The LD₅₀ in intravenous administration to mice is 45 mg/kg. (1 table, 1 bibliog. reference)

1/1

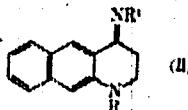
Acc. Nr:

AP0049781Abstracting Service:
CHEMICAL ABST. 5-70

Ref. Code:

24R0409

100463h Synthesis of benzo[g]quinoline derivatives. V.
 1-Acyl-1,2,3,4-tetrahydro-4-alkyl(aryl)iminobenzo[g]quinolines.
 Bekhli, A. E.; Kozyreva, N. P.; Kostyuchenko, L. P. (Inst.
 Med. Prazitol. Trop. Med. im. Makarovskogo, Moscow, USSR).
 Khim. Geterotsikl. Soedin. 1970, (1), 71-3 (Russ). Condensation of 1-acyl-1,2,3,4-tetrahydro-4-oxobenzo[g]quinolines (I) with primary amines gave the title compds. (II). The N-



tosyl deriv., m. 133-4° (heptane), was prep'd. in 52.8% yield by condensing 1,2,3,4-tetrahydro-4-oxobenzo[g]quinoline with *p*-toluenesulfonyl chloride in pyridine. A mixt. of 0.01 mole I, 0.02 mole amine, and 15 ml anhyd. isoamyl nlc. was boiled 3 hr with azeotropic distn. of H₂O to give II (R, R', m.p., and % yield given): Ac, Bu, 116-17° (heptane), 66; Ac, C₆H₅OEt-*p*, 154-5° (alc.), 75; Bz, C₆H₅OMe-*p*, 196-7° (heptane), 69; COC₆H₅Cl-2,4, C₆H₅OMe-*p*, 195-6° (alc.), 93; COC₆H₅Cl-2,4, C₆H₅OEt-*p*, 148-9° (alc.) 61; SO₂C₆H₅Me-*p*, C₆H₅OMe-*p*, 199-200° (Me₂CO) 57. II are easily hydrolyzed in acid forming either 1,2,3,4-tetrahydro-4-oxobenzo[g]quinoline or I, or a mixt. of both. S. K. Banerjee

REEL/FRAME
19801699

1/2 015

UNCLASSIFIED

PROCESSING DATE--11SEP70

TITLE--OPENING THE AZEPINE RING IN 2,3,4,5-TETRAHYDRO,1H, AZEPINO(3,4
B)INDOLE DURING ALKYLATION BY ALCOHOL IN THE PRESENCE OF RANEY NICKEL

AUTHOR--GLUSHKOV, R.G., VOLSKOVA, V.A., KOSTYUCHENKO, N.P., SHEYNKER,

YU.N., MAGIDSON, O.YU.

COUNTRY OF INFO--USSR

K

SOURCE--KHIM. GETEROTSIKL. SOEDIN. 1970, (2), 277-8

DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES, CHEMISTRY

TOPIC TAGS--NICKEL, CATALYST ACTION, ALKYLATION, INDOLE DERIVATIVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/1805

STEP NO--UR/0409/70/000/002/0277/0213

CIRC ACCESSION NO--AP0100379

UNCLASSIFIED

2/2 015

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0100379

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REDUCTION OF
1, METHOXY, 4,5, DIHYDRO, 3H, AZEPINO[3,4,B]INDOLE (I) WITH LiAlH₄ SUB4-ET
SUB2 O GA VE 71PERCENT 2,3,4,5, TETRAHYDRO, 1H, AZEPINO, [3,4,B]INDOLE (II),
M. 182-6DEGREES; HYDROCHLORIDE M. 280-20DEGREES. ATTEMPS TO ALKYLATE II
WITH MEI, ME SUB2 SO SUB4, OR CH SUB2 O IN THE PRESENCE OF HCO SUB2 H TO
OBTAIN THE 2,ME DERIV. OF II WERE UNSUCCESSFUL. THE ALKYLATION OF I
WITH ETOH OVER RANEY NI YIELDED
2, METHYL, 3, (3, (DIETHYLAMINO)PROPYL)INDOLE, 8 SUB2 165-7DEGREES.

UNCLASSIFIED

USSR

UDC: None

PLAKHOV, A. M., CHERNENKO, O. D., MALKOV, A. I., KOSTYUCHENKO,
V. I., LYSENKO, V. S., SURKOV, N. I., KIRPICHNIKOV, V. A., SMIRNOV,
I. A., and SAVCHENKO, L. I.

"A Device for Ultrasonic Defectoscopy"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obrastsy,
tovarnye znaki, no 4, 1973, p 98, No 363912

Abstract: The distinctive system in this device is one in which the sensor searching for the defects is mounted between rollers fixed to the lower side of the transmitting device, and is thus free to move around the workbench. A diagram of the mechanical arrangement, which improves the productivity of the device and its control, is given.

1/1

1/2 010 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--ALKYL OR PHENYLALKYL SULFONATE ESTERS -U-

AUTHOR--{03}-KOSTYUCHENKO, V.M., MITROFANOV, N.G., GERSHENOVICH, A.I.

COUNTRY OF INFO--USSR

SOURCE--U.S.S.R. 218,882

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,
DATE PUBLISHED--10FEB70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CHEMICAL PATENT, SULFONIC ACID, ESTER, ALKYL RADICAL, PHENOL,
BENZENE DERIVATIVE, CHEMICAL SYNTHESIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1597

STEP NO--UR/0482/70/000/000/0000/0000

CIPC ACCESSION NO--AA0135238

UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AA0135238
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TITLE COMPOS. ARE PREPD. BY
TREATING N,PARAFFIN SULFONYL CHLORIDES CONTG. C SUB8 -C SUB4 WITH ALCS.
CONTG. C SUB8 -C SUB16 OR WITH ALKYLPHENOLS CONTG. C SUB8 IN THE SIDE
CHAIN. THE REACTION IS CARRIED OUT IN THE PRESENCE OF NH SUB3 AT
SMALLER THAN 50DEGREES. FACILITY: VOLGOGRADSKY
NAUCHNO-ISSLEDOVATELSKIY INSTITUT NEFTYANOV I GAZOVVOY PROMYSHLENNOSTI.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--23 OCT 70
TITLE--REGENERATION OF BENZENESULFONIC ACID AS A CATALYST FOR THE
ALKYLATION OF PHENOL BY OLEFINS -U-
AUTHOR-(02)-BOBYLEV, V.V., KOSTYUCHENKO, V.M.

COUNTRY OF INFO--USSR

SOURCE--NEFTEPERERAB. NEFTEKHIM. (MOSCOW) 1970, (2), 13-14

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--BENZENE, SULFONIC ACID, AMMONIUM SALT, SULFURIC ACID,
ALKYLATION, PHENOL, ALKENE, CATALYST

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0565

STEP NO--UR/0318/70/000/002/0013/0014

CIRC ACCESSION NO--AP0119483

UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0119483

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BENZENESULFONIC ACID (I) WAS
CONVERTED INTO ITS NH₄ SALT AFTER ALKYLATION. THE Aq. SOLN. OF THE
LATTER WAS TREATED WITH A 40PERCENT H₂SO₄ SOLN., THE I SEPD.
WAS EXTD. WITH CCL₄, AND THE LATTER DISTD. OFF, GIVING I SUITABLE AS
A CATALYST FOR ALKYLATION. I WAS ALSO REGENERATED BY PASSING ITS NH₄
SALT SOLN. THROUGH A H CATION EXCHANGER, THE BEST EXCHANGE DEGREE
BEING 40PERCENT.

UNCLASSIFIED

USSR

UDC 548.517

KOSTYUCHENKO, V. P., and OVSIYENKO, D. YE., Institute of Metal Physics,
Academy of Sciences Ukr SSR

"Effect of Some Refractory Oxides on the Supercooling and Structure of Iron"

Kiev, Metallofizika, No 39, 1972, pp 96-102

Abstract: The effect of refractory oxides on the supercooling and macrostructure of iron was studied. With the addition of small amounts of oxides into a 100-gram sample of iron being melted and crystallized in a crucible in a high-frequency furnace, it was observed that magnesium oxide takes away the supercooling of iron and refines the structure somewhat; beryllium oxide, zirconium dioxide, and aluminum oxide reduce supercooling down to 140°C and, with the exception of zirconium dioxide, does not affect the macrostructure; titanium dioxide and silicon dioxide do not prevent obtaining maximum supercoolings of iron for these volumes (280°C) and do not affect the macrostructure. Investigation of the solidification of an iron drop on substrates of the above-mentioned oxides, according to the method of studying crystallization in small volumes, leads to obtaining one and the same supercoolings of 300-350°C independent of the substrate material. 3 figures, 1 table, 6 bibliographic references.

1/1

USSR

UDC 669.18.083.4:621.746.5

BALDAYEV, B. YA., KOSTYUK, A. D., ANSHELES, I. I., FEDAN, A. T., and DUMCHEV,
YA. P., Krasnyy Oktyabr' Plant and Moscow Institute of Steels and Alloys

"Stainless Steel Production Using a Vacuum"

Moscow, Stal', No 10, Oct 73, pp 898-901

Abstract: The process of oxidation-vacuuming of a number of chromium and chromium-nickel steels has been developed at the Volgograd Krasnyy Oktyabr' Metallurgical Plant Jointly with the Moscow Institute of Steel and Alloys and the Chelyabinsk Scientific Research Institute of Metallurgy, in which S. S. SIVKOV, V. A., MINCHENKO, L. A., DANIILYUK, V. V., FEDOSEYEV, and YA. YE. KATSNEL'-SON took part. This article discusses vacuum treatment of a steel in the ladle, the mechanism of vacuum decarburizing, the behavior of chromium during vacuum decarburizing, and quality of the vacuum-treated metal. Experimental data from different tests were processed on a MAIRI computer. It was concluded that vacuum melting of stainless steel makes it possible to produce conventional steels and steels with a lowered carbon content (down to 0.03%) by the method of remelting wastes with the use of only medium- and high-carbon grades of ferrochromium, with a quality at least as good as that from conventional technology. Use of inexpensive grades of ferrochromium, a shortened
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USSR

BALDAYEV, B. YA., et al., *Stal'*, No 10, Oct 73, pp 898-901

melting cycle, and fuller utilization of wastes from stainless steel yields a high economic effect. Four figures, seven bibliographic references.

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USSR

UDC 547.26'118 + 547.245

SAVAL'IEVA, N. I., KOSTYUK, A. S., BAUKOV, Yu. I., and LUTSENKO, I. F., Moscow
State University, ~~and M. V. Lomonosov~~

"Reaction of Trialkylsilylketenes With Dialkyl Phosphites and Dialkyl thiophosphates"

Leningrad, Zhurnal Obshchey Khimii, Vol 41 (10), No 2, Feb 71, pp 435-455

Abstract: Dimethyl esters of α -trimethylsiloxyvinylphosphonic acid, b.p. 79°/2mm, n_D^{20} 1.4378, d_4^{20} 1.0550 and α -trimethylsiloxyvinylthiophosphonic acid b.p. 83°/2mm, n_D^{20} 1.4740, d_4^{20} 1.1214 were synthesized by the reaction of trialkylsilylketenes with dialkyl phosphites and dialkyl thiophosphites in presence of catalytic amounts of triethylamine. It is proposed that formation of the esters $\text{CH}_2:\text{C}(\text{OSiR}_3)\text{P}(\text{X})(\text{OR})_2$ is a secondary process going through the formation of $[\text{R}_3\text{SiCH}_2(\text{CO})\text{P}(\text{X})(\text{OR})_2]$ analogously to the reaction of dialkyl phosphites and thiophosphites with ketene.

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1/2 011

UNCLASSIFIED

PROCESSING DATE--27NOV70

TITLE--O AND C,HETEROORGANIC ISOMERS. XI. REACTION OF KETENE WITH
TRIALKYLSILYL DIALKYLAMINES -U-

AUTHOR-(03)-KOSTYUK, A.S., BAUKOV, YU.I., LUTSENKO, I.F.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(3), 626-36

DATE PUBLISHED--70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--KETONE, ORGANOSILICON COMPOUND, AMINE, SILANE, ISOMER, VINYL
COMPOUND, ACETIC ACID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3006/1427

STEP NO--UR/0079/70/040/003/0626/0616

CIRC ACCESSION NO--A00135101

UNCLASSIFIED

2/2 011

CIRC ACCESSION NO--AP0135101

UNCLASSIFIED

PROCESSING DATE--27NOV70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. R SUB3 SiNR SUB2 REACT WITH H SUB2 C:CO ALONG ONE OF 3 PATHS DEPENDING ON STRUCTURE OF THE STARTING SILANES, BUT THE PRIMARY PRODUCTS ARE O DERIVS. WHICH ISOMERIZE INTO C DERIVS. OR REACT WITH H SUB2 C:CO TO YIELD VINYLACETIC ACIDS. (REACTIONS SHOWN ON MICROFICHE)

1/2 011 UNCLASSIFIED PROCESSING DATE--23 OCT 70
TITLE--REARRANGEMENT OF AMIDES OF TRIALKYLGEMYLACETIC ACID TO
N,TRIALKYLGEMYLACETAMIDES -U-
AUTHOR-(04)-BAUKOV, YU.I., BURLACHENKO, G.S., KOSTYUK, A.S., LUTSENKO,
I.F.
COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHM. 1970, 40(3), 707

DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ORGANOGERMANIUM COMPOUND, ACETIC ACID, ACETAMIDE,
ISOMERIZATION, NMR SPECTRUM, ORGANOSODIUM COMPOUND, ORGANOSILICON
COMPOUND, INTERMOLECULAR MECHANICS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0868

STEP NO--UR/0079/7D/040/003/0707/0707

CIRC ACCESSION NO--AP0124531

UNCLASSIFIED

2/2 011

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--APO124531
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. HEATING ET SUB3 GECH SUB2 CONHME TO 140-50DEGREES RESULTS IN ITS ISOMERIZATION INTO ACNMEGEET SUB3, WHICH WAS CHARACTERIZED BY ITS NMR SPECTRUM, ALSO USED TO FOLLOW THE REACTION. CL SUB3 GECH SUB2 CL AND RMGX GAVE R SUB3 GE CH SUB2 CL, WHICH WITH MG AND CO SUB2 GAVE R SUB3 GECH SUB2 CO SUB2 H, WHICH WITH CH SUB2:CO GAVE R SUB3 GECH SUB2 CO SUB2 AC, WHICH BY LOSS OF AC SUB2 C GAVE (R SUB3 GECH SUB2 CO) SUB2 O, WHICH PYROLYZED TO R SUB3 GECH:CC AND R SUB3 GECH SUB2 CO SUB2 H; THE YIELD OF THE KETENE, B SUB15 69-71DEGREES, N PRIME20 SUBD 1.4600, REACHED 40PERCENT, AND INTERMEDIATE STEPS GAVE 60-80PERCENT YIELDS. ALTERNATIVELY, PHCH SUB2 CO SUB2 ME TREATED WITH NAN(SIME SUB3) SUB2, THEN ME SUB3 SICL, GAVE PHCH:Cl(OME)OSIME SUB3; WITH GECL SUB4 AT 30DEGREES THIS GAVE PHC(GECL SUB3):Cl(OME)OSIME SUB3, WHICH PYROLYZED TO ME SUB3 SIME AND PHC(GECL SUB3):CO IN 54PERCENT YIELD, B SUB1 71-3DEGREES, N PRIME20 SUBD 1.5524. TRIETHYLERHYLKETENE AND MENH SUB2 GAVE ET SUB3 GECH SUB2 CONHME, 40PERCENT, B SUB0.05 98-9DEGREES, N PRIME20 SUBD 1.4821. FACILITY: MOSK. GSU UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 008 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--VACUUM DISTILLATION RESIDUES OF KACHANOVSKII DEPOSIT CRUDE OIL FOR
THE PRODUCTION OF ROOFING ASPHALTS -U-
AUTHOR--(03)-GAVRILENKO, I.G., BUDAN, A.N., KOSTYUK, S.L.

COUNTRY OF INFO--USSR

SOURCE--NEFT. GAZOV. PROM. 1970, (1), 37-40.

DATE PUBLISHED-----70

SUBJECT AREA--MATERIALS

TOPIC TAGS--ASPHALT, CRUDE OIL, PETROLEUM DEPOSIT, VACUUM DISTILLATION,
CONSTRUCTION MATERIAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3005/1968

STEP NO--UR/0513/70/000/001/0037/0040

CIRC ACCESSION NO--APO133812

UNCLASSIFIED

2/2 008

UNCLASSIFIED

PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0133812

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. VACUUM DISTN. RESIDUES B, LARGER THAN 400, 440, AND 490DEGREES WERE TESTED AS FEEDSTOCKS FOR THE PREPN. OF ROOFING ASPHALTS. BY LOW TEMP. OXIDN. WITHOUT COMPRESSION AT 200-250DEGREES, IT WAS POSSIBLE TO PRODUCE IN A PILOT PLANT ACCEPTABLE MATERIALS FROM THE THREE RESIDUES TESTED. THE PROPERTIES OF THE FINAL ASPHALTS ARE TABULATED.

UNCLASSIFIED

USSR

UDC: 518.5:681.3.06

ZAKHARCHENKO, O. Ye., KOSTYUK, E. N.

"Standard Program for Solution of a System of Ordinary Differential Equations by the Adams Method With Iterations (Successive Approximation by Euler's Criterion). In M-20 Computer Codes"

V sb. Mat. obespecheniye avtomatizir. sistem proyektir. elektro- i radio-tekhn. ustroystv. Vyp. 1 (Software in Systems for Automated Design of Electrical and Radio Equipment—collection of works, No 1), Kiev, 1970, pp 207-231 (from RZh-Matematika, No 11, Nov 71, Abstract No 11V848)

Translation: The paper describes the mathematical formulation of a problem, the method of solution, blocks of a standard program in M-20 computer codes, and the sequence of operation with the program. V. Mikheyev.

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USSR

UDC: 518.5:681.3.06

KOSTYUK, E. N.

"Standard Program for Solving a System of Linear Algebraic Equations by the Method of Conjugate Gradients With Minimization of the Deviation of the Norm of the Approximate Solution From the Exact Solution (In-M-20 Computer Codes)"

V sb. Mat. obespechivayushchim avtomatizir. sistem proyektir, elektro- i radio-tekhn. ustroystv. Vyp. 1 (Software in Systems for Automated Design of Electrical and Radio Equipment—collection of works, № 1), Kiev, 1970, pp 232-257 (from RZh-Matematika, № 11, Nov 71, Abstract No 11V849)

Translation: The method of conjugate gradients and the corresponding algorithm are described. A program in M-20 digital computer codes is presented. V. Mikheyev.

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USSR

UDC 517.948.32

KOSTYUK, E. N.**"Successive Approximation Procedure for a Type of Integral Equation"**

Kiev, Kibernetika i Vychislitel'naya Tekhnika, Metody Rascheta Elektromagnitnykh Polej na Etsva, No 11, 1971, pp 31-35

Abstract: The most general approach to the formulation of the problem of designing high-frequency microelectronic circuits was first presented by O. V. Tozoni [Kibernetika, No 2, 1970]. The principles of the method of designing communications lines in computer circuits and elements were discussed. Extension of this method to designing fairly complex high-frequency microelectronic circuits leads to the necessity for investigating the system of linear integral equations having the following general form:

$$\phi_i(x_i) - \int_{a_i}^{x_i} R_{ii}(x_i; s_i) \psi_i(s_i) ds_i - \sum_{j=1}^n \int_{a_j}^{b_j} K_{ij}(x_i; s_j) \psi_j(s_j) ds_j = f_i(x_i) \quad (a_i \leq x_i; s_i \leq b_i; \quad i = 1, 2, \dots, n),$$

where n is the number of conductors in the circuit. The conditions of convergence of the method of successive approximations in finding the solution of 1/2

USSR

KOSTYUK, E. N., Kibernetika i Vychislitel'naya Tekhnika, Metody Rascheta Elektromagnitnykh Poley na Etsvm, No 11, 1971, pp 31-35

this system of n-th order linear integral equations containing the Volterra operators $R_{ij}(x, s)$ and the Fredholm operators $K_{ij}(x, s)$ are defined. Under the condition

$$\sum_{i,j=1}^n (\|r_{ij}\| + \|K_{ij}\|) < 1$$

the system has a unique, quadratically summed solution which can be obtained by the method of successive approximations. The numerical study was made of the region of convergence of the method of successive approximations for two examples, each of which is described by one integral equation. In the examples investigated the values indicate that if the ordinary iteration process converges, it is only for a narrow region of variation of the parameters. However, in cases where the specific conductivity of the surrounding medium γ_0 is small, as occurs in the first example, the describing equation can be replaced, with negligible error, by the Fredholm equation with a symmetric kernel. For the Fredholm equation with a self-conjugate operator, iteration methods are known which converge at the rate of a geometric progression.

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USSR

UDC: 518.5:681.3.06

KOSTYUK, E. N.

"Standard Program for Determining the Minimum of a Function With Approximate Calculation of the Derivative. In M-20 Computer Codes"

V sb. Mat. obespecheniye avtomatizir. sistem proektir. elektron- i radio-tekhn. ustroystv (Software for Automating Systems for Design of Electronic and Radio Equipment), vyp. 3, Kiev, 1970, pp 172-197 (from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V846)

Translation: In finding the minimum of the function $I(a_1, a_2, \dots, a_n)$ which depends on the parameters a_r ($r=1, 2, \dots, m$) and is defined in region A, it is advisable in certain instances to calculate the derivatives of the function with respect to the parameters $\partial I / \partial a$ approximately. The proposed standard program permits finding the minimum of the function I by the method of gradient descent with approximate calculation of derivatives. The author describes the algorithm of gradient descent, the elements of the standard program, the sequence of operation with the program, the problem of checking, and also the standard program itself in M-20 digital computer codes.

V. Mikheyev.

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USSR

UDC: 581.5:681.3.06

KOSTYUK, E. N., ZAKHARCHENKO, O. Ye.

"Standard Program for Solving a System of Ordinary Differential Equations by the Adams Method With Iterations (Dispersal by Euler's Formula). In M-20 Computer Codes"

V sb. Mat. obespecheniye avtomatizir. sistem proyektir. elektro- i radio-tekh. ustroystv (Software for Automating Systems for Design of Electronic and Radio Equipment), vyp. 1, Kiev, 1970, pp 207-231 (from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V848)

Translation: The paper describes mathematical formulation of the problem, the method of solution, the elements of the standard program in M-20 computer codes, and the sequence of operation with this program. V. Mikheyev.

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USSR

UDC: 518.5:681.3.06

KOSTYUK, E. N.

"Standard Program for Solving a System of Linear Algebraic Equations by the Method of Adjoint Gradients With Minimization of the Norm For Deviation of the Approximate Solution From the Exact Solution. (In M-20 Computer Codes)"

V sb. Mat. obespecheniye avtomatizir. sistem proektir. elektro- i radio-tekhn. ustroystv (Software for Automating Systems for Design of Electronic and Radio Equipment), vyp. 1, Kiev, 1970, pp 232-257 (from RZh-Kibernetika, No 11, Nov 71, Abstract No 11V849)

Translation: The paper describes the method of conjugate gradients and the corresponding algorithm. The program is given in M-20 computer codes.
V. Mikheyev.

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USSR

UDC: 518.5:681.3.06

KOSTYUK, E. N.

"Standard Program for Finding a Method of Steep Descent of the Minimum
of a Function Defined in a Given Region. (In M-20 Computer Codes)"

V sb. Mat. obespecheniya avtomatizir. sistem proyektir. elektro- i
radiotekhn. ustroystv. Vyp. 3 (Mathematical Provisioning for Automated
Systems for the Design of Electrical and Radio Equipment. No 3--collection
of works), Kiev, 1970, pp 198-222 (from RZh-Kibernetika, No 9,
Sep 71, Abstract No 9V612)

[No abstract]

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USSR

PUPKOV, K. A., KOSTYUK, G. A.

"Some Problems of Stochastic Models of Trainability of Cybernetic Systems"

Tr. Mosk. In-ta Elektron. Mashinostr. [Works of Moscow Institute of Electronic Machine Building], No 6, 1970, pp 33-48, (Translated from Referativnyy Zhurnal, Kibernetika, No 2, 1972, Abstract № 2 V736 by the author's).

Translation: A method is suggested for estimating the probability of successful operation of automatic systems which are trained during a process of testing. A mathematical model of the process of training is constructed, considering the dependence of the test results from sample to sample. The method can be used to estimate the probability of successful operation of any system or device which is adjusted during the testing process.

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"APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002201520004-5

11/01 011
TITLE--THE DEVELOPMENT OF LENINIST IDEAS IN SOVIET PSYCHOLOGY OF
PERSONALITY -U- UNCLASSIFIED PROCESSING DATE--23 OCT 70
AUTHOR--KOSTYUK, G.S.

COUNTRY OF INFO--USSR

SOURCE--VOPROSY PSIKHOLOGII, 1970, NR 3, PP 3-24
DATE PUBLISHED-----70

SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES
TOPIC TAGS--MASS PSYCHOLOGY, PERSONALITY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0808

CIRC ACCESSION NO--APO126489

STEP NO--UR/D402/F10/000/003/0003/0024

UNCLASSIFIED

APPROVED FOR RELEASE: 08/09/2001

CIA-RDP86-00513R002201520004-5"

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UNCLASSIFIED

PROCESSING DATE--23OCT70

GIRC ACCESSION NO--AP0126469

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PAPER GIVES AN ACCOUNT OF THE PRESENT STATE OF THE PROBLEM OF PERSONALITY IN SOVIET PSYCHOLOGY. PROCEEDING FROM THE LENINIST TEACHING ABOUT THE SOCIAL ESSENCE OF PERSONALITY, FROM THE CRITICISM BY V. I. LENIN OF SUBJECTIVISTIC POSITIONS IN THE SOLUTION OF THE PROBLEM OF PERSONALITY ROLE IN HISTORICAL PROCESS, SOVIET PSYCHOLOGISTS DEVELOP THE IDEA OF SOCIAL CONDITIONALITY OF PERSONALITY AND THE LEADING ROLE OF SOCIAL ENVIRONMENT IN ITS FORMATION. IN THE WORKS OF SOVIET PSYCHOLOGISTS THE DIALECTICS OF THE EXTERNAL AND THE INTERNAL, OF THE OBJECTIVE AND THE SUBJECTIVE IN THE DETERMINATION OF THE ACTIVITY OF PERSONALITY IS SHOWN: THE EXTERNAL CAUSES GIVE RISE TO ACTIONS OF PERSONALITY BY BEING TRANSFORMED THROUGH INTERNAL CONDITIONS. THE PROBLEM OF THE ROLE OF COLLECTIVE IN THE FORMATION OF PERSONALITY, OF THE ROLE OF ASSIMILATION OF SOCIAL EXPERIENCE IN ITS DEVELOPMENT ARE ALSO CONSIDERED. IT IS SHOWN THAT PERSONALITY IN SOVIET PSYCHOLOGY IS CONSIDERED AS AN INTEGRAL SYSTEM, THE STRUCTURE OF MENTAL PROPERTIES OF HUMAN INDIVIDUAL. MANY INVESTIGATIONS ON PERSONALITY IN SOVIET PSYCHOLOGY ARE DEVOTED TO THE DEVELOPMENT OF PERSONALITY IN CHILDREN. THESE INVESTIGATIONS ARE DEALING WITH THE FORMATION OF CHILD PERSONALITY IN THE COURSE OF ITS DEVELOPMENT DIALECTICALLY BROUGHT ABOUT BY INTERNAL CONTRADICTIONS WHICH ARE SOLVED THROUGH ACTIVITY.

FACILITY: INSTITUT PSIKHOLOGII

USSR, KIEV.

UNCLASSIFIED

USSR

UDC 629.78.018.1

BLAGOVESHCHENKIY, S. A., KOSTYUK, K. K., EL'GUDINA, B. A.

"Experimental Study of the Effect of Reynolds Number on the Aerodynamic Characteristics of the Wing-Body Combination at $M = 8$ "

Uch. zap. Tsentr. aero-gidrodinam. in-ta (Scientific Notes of the Central Aerohydrodynamic Institute), 1970, Vol. 1, No. 6, pp 50-66 (From Fiz-Raketostroyeniye, No 9, Sep 71, Abstract No 9.41.74)

Translation: The results of an experimental study of hypersonic models of a maneuverable hypersonic aircraft at $M = 8$ are given. A comparison is made with the results of estimated calculations of the value of K_{\max} for a change in the Reynolds number in the range $2 \cdot 10^5 - 2 \cdot 10^6$. Possible methods of reducing losses in K_{\max} to balance the pitching moment are discussed. 9 ill., 5 ref. Resume.

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USSR

UDC 533.652/.661.013

BLAGOVESHCHENSKIY, N. A., KOSTYUK, K. K., EL'GUDINA, N. A.

"Experimental Investigation of the Effect of the Reynolds Number on the Aerodynamic Characteristics of a Wing-Fuselage Combination at Mach Eight"

Uch. zap. Tsentr. aero-gidrodinam. in-ta (Scientific Notes of the Central Aerohydrodynamics Institute), 1970, 1, No 6, pp 58-66 (from RZh-Mekhanika, No 10, Oct 71, Abstract No 10B240)

Translation: This paper presents the results of an experimental study of schematized models of a maneuverable hypersonic aircraft at Mach eight. Rough calculations of the quantity K_{max} for a change in the Reynolds number over the range of $2 \cdot 10^5 - 2 \cdot 10^6$ are compared with the experimental results. Possible methods of reducing the losses of K_{max} in pitch balancing are considered. Authors' abstract.

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USSR

UDC 621.311.016.351:621.313

KOSTYUK, O. M.

"Structural Schematics of Synchronous Machines with Damper Windings"

V sb. Probl. tekhn. elektrodinamiki (Problems of Technical Electrodynamics — collection of works), vyp. 26, Kiev, Naukova Dumka Press, 1970, pp 3-13 (from RZh-Elekrotehnika i Energetika No 4, Apr 71, Abstract No 4 Yel96)

Translation: Structural schematics of synchronous machines with damper windings are established on the basis of the linearized equations for these machines. The transfer functions of the links of the structural systems are defined in terms of the physical parameters of the machines. It is demonstrated that the systems have differentiating links which form part of the feedback circuit. There are 4 illustrations and a 3-entry bibliography. [Electrodynamics Institute of the Ukrainian SSR Academy of Sciences]

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Pharmacology and Toxicology

USSR

UDC 615.28.015.45:[612.452.018+612.626.4]

KOSTYUK, O. T. and MUKHTAROVA, N. D., Institute of Hygiene and Toxicology of Pesticides, Polymers, and Plastics

"Catecholamines and Hypothalamic Function Following Exposure to Organochlorine and Organophosphorus Pesticides"

Moscow, Gigiyena Truda i Professional'nyye Zabolevaniya, No 5, 1970, pp 35-38

Abstract:- The epinephrine and norepinephrine content of the daily urine was studied in 53 persons engaged in aerial spraying of DDT, chlorophos, etc. for 1 to 10 years or more. It was found that the longer the period of exposure, and the closer the contact with chemicals, and the deeper the involvement of the autonomic nervous system and the degree of diencephalopathy, the higher the level of epinephrine excretion and the lower the level of norepinephrine excretion with the daily urine. Fluctuations in the amount of catecholamines excreted corresponded to the clinical manifestations of nervous system pathology; shifts were greatest in those suffering from diencephalic disorders. Catecholamine metabolism returned to normal after treatment.

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USSR

UDC 612.8.015.1

(1)

MAKARCHENKO, A. F., ROYTRUB, B. A., ZLATIN, R. S., GENIS, Ye. D., and
KOSTYUK, O. I., Institute of Physiology imeni A. A. Bogomolets, Academy of
Sciences Ukrainian SSR, Kiev

"Acetylcholinesterase Activity in Hypothalamic and Cortical Structures During
the Action of Pharmacological Agents"

Kiev, Neyrofiziologiya, Vol 5, No 1, Jan/Feb 73, pp 47-53

Abstract: Acetylcholinesterase (AChE) activity in rat brain was recorded continuously by the automated electrometric method. In intact rats aged 1 month, AChE activity is highest in the sensory and motor cortex, while various lower levels are assumed in the posterior hypothalamus, anterior hypothalamus, and hippocampus. With advancing age (6, 12, and 24 months), the center of AChE activity is shifted to the posterior hypothalamus, and there is a general decrease in AChE activity per gram of tissue. Adrenaline, injected subcutaneously in a dose of 300 mcg/kg, redistributes AChE activity within 15 min, shifting the maximum to the anterior hypothalamus. An identical dose of chloral hydrate reduces AChE activity and equalizes it in all these structures. The histochemical method, though good for determining the location of AChE in cell organelles, is unable to detect small variations in AChE activity. Since
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USSR

MAKARCHENKO, A. F., et al, Neyrofiziologiya, Vol 5, No 1, Jan/Feb 73, pp 47-53

AChE activity reflects the physiological activity of the given structure, the electrometric method is recommended for determinations of the functional state of nervous tissues.

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1/2 034 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--CATECHOLAMINES AND HYPOTHALAMIC FUNCTION UNDER THE EFFECT OF AN
ORGANOCHLOROUS AND ORGANOPHOSPHORUS PESTICIDES COMPLEX -U-
AUTHOR-(02)-KOSTYUK, O.T., MUKHTAROVA, N.D.

COUNTRY OF INFO--USSR *K*

SOURCE--GIGIYENA TRUDA I PROFESSIONAL'NYYE ZABOLEVANIYA, 1970, NR 5, PP
35-38
DATE PUBLISHED-----70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--CHLORINATED ORGANIC COMPOUND, ORGANIC PHOSPHORUS COMPOUND,
PESTICIDE, NERVOUS SYSTEM, PATHOLOGY, CATECHOLAMINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/0583

STEP NO--UR/0391/70/000/005/0035/0038

CIRC ACCESSION NU--APO116181

UNCLASSIFIED

2/2 034 UNCLASSIFIED PROCESSING DATE--16OCT70
CIRC ACCESSION NO--APO116181
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DIURNAL EXCRETION OF CATECHOLAMINES AND THE STATE OF NERVOUS SYSTEM WERE EXAMINED IN 53 PERSONS WITH A VIEW TO AN EARLY DIAGNOSIS OF A POSSIBLE PATHOLOGICAL EFFECT PRODUCED BY A COMPLEX OF ORGANOCHLOROUS AND ORGANOPHOSPHORUS PESTICIDES. THE PROPORTIONS OF CATECHOLAMINES (EPINEPHRINE AND NOREPINEPHRINE) VARIED DEPENDING UPON THE DURATION AND INTENSITY OF EXPOSURE TO PESTICIDES, AND ALSO UPON THE EXTENT OF THE NERVOUS SYSTEM INVOLVEMENT. A STATISTICALLY SIGNIFICANT DROP IN NOREPINEPHRINE AND A RISE IN EPINEPHRINE WERE OBSERVED TO OCCUR IN CASES OF DIENCEPHALOPATHY.
FACILITY: INSTITUT FIGIYENY I TOKSIKOLOGII PESTITSIOUV, POLIMERNYKH I PLASTICHESKIKH MASS.

UNCLASSIFIED

Biochemistry

USSR

UDC 612.014 + 576.3

KOSTYUK, P. G. Institute of Physiology imeni O. O. Bogomolets, Academy of Sciences Ukrainian SSR, Kiev

"Prospects in Studies of Cell Membranes"

Kiev, Fiziologichnyy Zhurnal, Vol 18, No 4, Jul/Aug 72, pp 446-451

Abstract: The author discusses membrane processes in living cells, the morphogenesis and functions of membranes, and reviews the following principal directions in the study of membranes. (1) the chemical composition of the cell membranes; (2) molecular organization of membranes; (3) the mechanism of the physico-chemical processes occurring in membranes, and (4) the anti-gradient transport mechanism of membranes. A short review is given of the most important works in membrane biochemistry, physiology, and pathology that are carried out at institutions of higher learning in the Ukrainian SSR. The Institute of Biochemistry is doing research on the mechanism of active membrane transport in nerve and muscle tissues, the effect of the enzyme participating in the transmembrane transport of ions (sodium - potassium activated ATPase), synthesis of this enzyme and determination of its phospholipid composition. The Institute of Physiology imeni O. O. Bogomolets is occupied with the membrane potentials and recording of the potential with specially designed

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KOSTYUK, P. G., Fiziologichnyy Zhurnal, Vol 18, No 4, Jul/Aug 72, pp 446-451

instruments which make it possible to establish the volt-ampere characteristics of the surface membranes of living cells. The Institute of Oncology of the Academy of Sciences Ukrainian SSR studies the relation between the malignant growth of tissues and structural changes occurring in the cell membranes. Results of this work indicated that malignant growth decreases the electrical potential of the cell surface membrane and this becomes noticeable quite early during the cancer process before morphological changes are visible in the cell. The importance of cell membranes in cardiovascular and blood diseases is emphasized.

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"Active Transport of Ions in a Nerve Cell and its Connection With Electrical
Processes at the Surface Membrane"

Ukrainskiy Biokhimicheskiy Zhurnal, Vol 43, No 1, 1971, pp 9-16

Abstract: The surface membrane of a cell is structured in such a way that it guarantees the establishment of an unequal distribution of ions between the cell protoplasm and the surrounding medium of the cell and utilizes this unequal distribution for generation of cellular reactions. Two mechanisms of ion transfer through the cellular surface membrane are discussed. Electrical processes at the cellular surface membrane involve primarily a current of sodium ions. The characteristics of this current can be established by ionophoretic introduction of ions and the amount of charges observed. Voltage studies made on mollusk giant neurons showed that approximately 30% of the ions so injected into the cells are withdrawn by the electric current, that is, they are not exchanged for other cations. The remaining (70%) Na ions do not participate in the establishment of a trans-membrane

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potential difference. The time course of these electric processes was found to be comparable to that of the active transport processes in the motoneurons of the mammalian spinal cord. Nevertheless not much is known yet about the relative electrogenerating nature of the withdrawal of sodium ions from the nerve cell. It is proposed that the main task of ion transport across the cellular surface membrane is to stabilize the latter by inhibiting the generation of impulses after an excess of sodium ions has been introduced into the cell. It is likewise possible that the electrogenic transport mechanisms are activated in prolonged synaptic processes.

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172 020 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--SYNAPTIC PROCESSES IN NEURONS OF CLARKE'S COLUMN PRODUCED BY AN
ANTIDROMIC VOLLEY FROM THE DORSAL LATERAL FUNDICULUS ^{HU-}
AUTHOR--(03)-KUSTYUK, P.G., PYATIGORSKIY, D.YA., LANG, E.

COUNTRY OF INFO--USSR

SOURCE--NEVRUFIZIOLGIYA, 1970, VOL 2, NR 3, PP 269-278

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PROCESSING DATE--30OCT70

CIRC ACCESSION NO--APIO123468

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RESPONSES OF CLARKE'S COLUMN NEURONS TO STIMULATION OF AXONS ASCENDING IN THE DORSAL PART OF THE LATERAL FUNICULUS WERE STUDIED IN CATS UNDER NEBUTAL CHLORALOSE ANAESTHESIA. THE ACTIVITY OF DESCENDING FIBERS IN THE FUNICULUS WAS ELIMINATED BY PREVIOUS (7 -10 DAYS) IPSILATERAL HEMISECTION OF THE SPINAL CORD IN THORACIC REGION WHICH RESULTED IN THEIR DEGENERATION OR BY SEPARATE STIMULATION OF ASCENDING AXONS IN THE RESTIFORM BODY. IT WAS SHOWN THAT DURING BOTH TYPES OF THE EXPERIMENTAL PROCEDURE THE CELLS IN THE REGION OF CLARKE'S COLUMN COULD BE FOUND IN WHICH THE ANTIDROMICALLY DESCENDING VOLLEY PRODUCES NOT ACTION POTENTIALS BUT PRIMARY EXCITATORY POSTSYNAPTIC POTENTIALS (EPSP). THE LATENCY OF EPSP WAS IN AGREEMENT WITH THEIR MONOSYNAPTIC ORIGIN; THEIR DURATION REACHED 10-15 MSEC. SUCH NEURONS COULD BE ALSO SYNAPTICALLY ACTIVATED BY LOW AND HIGH THRESHOLD AFFERENTS FROM DIFFERENT MUSCLES. OBVIOUSLY THEY CORRESPOND TO "BURGER CELLS" DESCRIBED MORPHOLOGICALLY BY RETHEYI (1968) WHICH RECEIVE TERMINALS FROM AXON COLLATERALS OF ASCENDING AXONS OF THE DORSAL SPINOCEREBELLAR TRACT (DSCT). IN SOME NEURONS OF THE DSCT (THOSE WITH LOW AXON CONDUCTION VELOCITY) STIMULATION OF THE DORSAL LATERAL FUNICULUS RESULTED NOT ONLY IN ANTIDROMIC SPIKES BUT ALSO IN SUBSEQUENT SYNAPTIC DEPOLARIZATION WHICH MIGHT BE PRODUCED THROUGH THE "BURGER CELLS". THE POSSIBLE FUNCTIONAL ROLE OF THE FEEDBACK SYSTEM FORMED BY AXON COLLATERALS OF THE DSCT NEURONS AND "BURGER CELLS" IS DISCUSSED. FACILITY: THE A. A. BUGUMOLETZ INSTITUTE OF PHYSIOLOGY, ACADEMY OF SCIENCES, UKRAINIAN SSR, KIEV.

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"Studies on Spinal Neuronal Mechanisms of the Systems Controlling
Movement"

Kiev, Neyrofiziologiya, No 2, 1970, pp 189-202

Abstract: Morphological and electrophysiological studies of cats showed that the main descending motor systems (cortico-, rubro-, reticulo-, vestibulospinal) can be connected with the segmental interneuronal apparatus and motoneurons in two ways. They either activate the motoneurons directly (monosynaptically), or they are linked initially to different interneuronal systems, exerting their influence by controlling more or less complex spinal mechanisms. The phylogenetically oldest systems (reticulospinal and vestibulospinal) excite the motoneurons monosynaptically, whereas the newer systems (cortico- and rubrospinal) transmit to the spinal cord the most complex motor signals from the cerebral cortex and cerebellar cortex. The descending systems act on the interneuronal apparatus mainly through (i) control of the afferent flow at the input to the

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KOSTYUK, P. G., et al., Kiev, *Neyrofiziologiya*, No 2, 1970, pp 159-202

interneuronal apparatus by presynaptic inhibition of the corresponding synapses; (ii) control of this apparatus by postsynaptic interaction with the effects of the afferent influences; and (iii) control of the motoneurons through specialized interneurons. The latter function in the cortico- and rubrospinal and possibly reticulo- and vestibulospinal systems as well.

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TITLE--INVESTIGATION OF THE SPINAL NEURONAL MECHANISMS OF THE MOVEMENT
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AUTHOR--KOSTYUK, P.G.

COUNTRY OF INFO--USSR

SOURCE--NEYROFIZIOLOGIYA, 1970, VOL 2, NR 2, PP 189-202

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SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

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CIRC ACCESSION NO--APO100929

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. MORPHOLOGICAL AND ELECTROPHYSIOLOGICAL INVESTIGATIONS OF THE CONNECTIONS BETWEEN MAIN DESCENDING SYSTEMS (CORTICO, RUBRO, RETICULO AND VESTIBULO SPINAL) AND SEGMENTAL INTERNEURONAL APPARATUS AND MOTONEURONS INDICATE THAT THEY CAN BE BASED ON TWO DIFFERENT PRINCIPLES. THE DESCENDING SYSTEMS CAN ACTIVATE MOTONEURONS DIRECTLY (MONOSYNPATIALLY) AND CAN BE CONNECTED PRIMARILY WITH DIFFERENT INTERNEURONAL SYSTEMS EXERTING IN THE LATTER CASE THEIR INFLUENCE THROUGH MORE OR LESS COMPLICATED SPINAL MECHANISMS. MONOSYNAPTIC EXCITATORY ACTION UPON MOTONEURONS IS THE PROPERTY OF THE PHILOGENETICALLY OLD DESCENDING SYSTEMS (RETICULO AND VESTIBULO SPINAL); NEW DESCENDING SYSTEMS THAT TRANSMIT TO THE SPINAL CORD THE COMPLICATED MOTOR SIGNALS FROM THE MOTOR CORTEX AND CEREBELLUM (CORTICO AND RUBRO SPINAL) TERMINATE SYNAPTICALLY EXCLUSIVELY ON INTERNEURONS. ONLY IN PRIMATES A CERTAIN AMOUNT OF CORTICO SPINAL FIBRES ESTABLISHES MONOSYNAPTIC CONNECTIONS WITH MOTONEURONS. THE MAIN TYPES OF DESCENDING SYSTEM ACTION ON THE INTERNEURONAL APPARATUS ARE: CONTROL OF THE AFFERENT INFLOW AT THE INPUT TO INTERNEURONS BY PRESYNAPTIC INHIBITION OF THE CORRESPONDING SYNAPSES; CONTROL OF INTERNEURONES BY POSTSYNAPTIC INTERACTION WITH THE EFFECTS OF AFFERENT INFLUENCES; CONTROL OF MOTONEURONS THROUGH SPECIALIZED INTERNEURONS. THE PRESENCE OF THE LATTER TYPE IS FOUND FOR THE CORTICO AND RUBRO SPINAL SYSTEMS AND IS SUGGESTED FOR THE RETICULO AND VESTIBULO SPINAL ONES. THE FUNCTIONAL ROLE OF DIFFERENT TYPES OF CONNECTIONS BETWEEN DESCENDING SYSTEMS AND SPINAL NEURONS IN THE CONTROL OF MOVEMENTS IS DISCUSSED.

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/ FUNCTIONAL PROPERTIES OF SURFACE MEMBRANES OF EXCITABLE
CELLS AND METABOLISM

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Summary

All the active physiological processes developing on the surface membranes of the excitable cells are produced by transmembrane currents of the basic inorganic ions — sodium, potassium, calcium and chloride. The data obtained by the present time show that ion transfer through the membrane in these case can be produced by means of two different forces — "passively" due to electrochemical gradients existing on the membrane and "actively" due to the energy of metabolic processes taking place in the cell. In the first case ion transfer is possible only in gradient direction, and in the second one — also in the direction against electrochemical gradient for the ion in transfer. Both

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mechanisms are interdependent, as the metabolic ion transfer maintains their non-uniform distribution on both sides of the membrane and thus maintains electrochemical gradients, and "passive" penetration of ions through the membrane inside the cell, in its turn, activates metabolic transport systems.

Investigations carried out on the mollusc giant neurons confirm these statements well. These investigations show that both "passive" and "active" ion transfer may take part in producing constant electrical polarization of membrane. The degree of "active" transfer participation may be determined by measuring the temperature dependence of the membrane potential, investigating the effect of metabolic inhibitors on it, etc. This degree proves to be particularly essential, when in connection with the accumulation of sodium ions inside the cell the activation of enzyme systems takes place, providing

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"active" transfer of sodium from the cell into the extracellular medium. Under natural conditions such activation is possible with rhythmical cell excitation resulting in the entering of sodium ions into it. An increase in the membrane potential produced by the "active" transfer may lead to cessation of rhythmical activity and stopping of further accumulation of sodium in the cell.

The possibility of chemical activation of the systems of "active" ion transfer by substances acting on the surface membrane from extracellular medium (for example, by synaptic transmitters) and participation of such transfer in the creation of synaptic reaction are discussed.

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